Honors Topic: Patterns

**Standard:** Recognize and appreciate patterns in nature, art, and mathematics

* Understand the origin of the **Fibonacci Sequence**, compute consecutive terms in the sequence, and be able to identify the sequence in nature and art.
* Study the **Golden Ratio.** What is it? Recognize where the Golden Ratio is found in nature and art.
* Create wallpaper patterns and **tessellations** using mathematical principles.
* Understand **fractals** as iterations of a process, recognize fractals in nature and art, and recreate basic fractals.
* Study the patterns found in **Pascal’s Triangle**.
* Recognize the **Archimedean Spiral** and where it is found in nature and art.
* Study the use of **mathematical patterns in** **music**. How are mathematics and music related?
* Research the use of **patterns in a variety of cultures**.

Your assignment

1. You may work individually or in groups of 2
2. Pick a pattern from those listed above (in bold) or if you know of another mathematical pattern that you would like to study, check with Mrs. Pickett about studying it.
3. Research your pattern (I know you know how to research—Mrs. Thurber told me so!) Who discovered the pattern? What led them to the discovery? Where is the pattern found in art or nature? What do you find interesting? Could you explain your pattern to someone else? Find pictures or representations of the pattern you chose. Feel free to draw or create your own version of the pattern.
4. Prepare a poster presentation or powerpoint about your pattern. Include historical information, pictures, examples, and anything you found really cool about your pattern. I will provide posters and a color printer. Make your poster pretty!
5. We will do a gallery walk of the posters on Wednesday. During the gallery walk, you will learn from your classmates about the patterns they chose to study. There will be a worksheet that you will fill out as you look at the presentations.
6. This assignment will be graded as a 50-point test. You will be graded according to the neatness of your presentation, the depth of information and research, the worksheet from the gallery walk, and your overall cooperation during work time.